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Committee Members Present:

Knute Michael Miller, Committee Chairman and Past Board President
Dave Connolly, Board Vice President
Robert Kosnik, MD
Captain Einar Nyborg, Commissioner and San Francisco Bar Pilot

Committee Members Absent:

Brigadier General (Ret.) Chester L. Ward, MD

Staff Present:

Allen Garfinkle, Executive Director
Roma Cristia-Plant, Assistant Director
Dennis Eagan, Board Counsel
Luis Cruz, Associate Governmental Program Analyst
Alethea Wong, Administrative Assistant II

Public Present:

Captain Joseph Long, San Francisco Bar Pilots (SFBP) President and Port Agent; Raymond Paetzold, SFBP Business Director-General Counsel; Mike Jacob, Pacific Merchant Shipping Association Vice President and General Counsel; and Captain David Cvitanovic, SFBP.

OPEN MEETING

1. Call to order and roll call. (Chairman Miller)

Chairman Miller called the meeting to order at 9:32 a.m. Associate Governmental Program Analyst Cruz called the roll and confirmed a quorum.

2. Approval of the minutes of Committee meeting held on November 16, 2018. (Chairman Miller)

Committee members were presented with the draft minutes from the Committee meeting held November 16, 2018. Minor non-substantive edits were requested by Vice President Connolly.

MOTION: Vice President Connolly moved to approve the draft minutes of the meeting held on November 16, 2018, as amended. Commissioner Nyborg seconded the motion.

VOTE: Yes: Miller, Connolly, Kosnik, and Nyborg.
No: None.

Abstain: None.

ACTION: The motion was approved.

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3. Report on the pilot and trainee fitness determination process involving the Division of Occupational & Environmental Medicine at the University of California, San Francisco Campus. (Executive Director Garfinkle)

Executive Director Garfinkle reported that the pilot and trainee fitness determination process involving the Division of Occupational & Environmental Medicine at the University of California, San Francisco Campus (UCSF) continues to work well. He stated that there were multiple pilot license renewals in December, and UCSF was able to process all required medical assessments on time. He noted that he received positive feedback from licensees concerning the services received from UCSF staff, and thanked the UCSF staff for its continued support of pilot and trainee medical evaluations. There were no further questions or discussion.

4. Review and discuss the Pilot Fatigue Study produced by San Jose State University Research Foundation and NASA. Identify key recommendations appropriate for incorporation into regulations. (Committee members and staff)

Chairman Miller commenced the discussion of this agenda item by providing the Committee and members of the public a summary of the previous Committee discussion of the San Francisco Bar Pilot Fatigue Study (Study) findings and recommendations. He noted that it was his intent for the Committee to complete its review of all Study recommendations at this meeting, and proceeded to guide the Committee's review of the recommendations.

Study Recommendation #1: Interventions intended to prevent or manage fatigue should be introduced as part of an overall Fatigue Risk Management System (FRMS), some elements of which are already in place.

Chairman Miller opined that the SFBP is in the best position to develop a Fatigue Risk Management System (FRMS), and thought that the FRMS should be subject to the approval and periodic review of the Board. Vice President Connolly concurred with Chairman Miller, and noted that it would be helpful to identify the SFBP work rules currently in place.

Commissioner Nyborg noted that Dr. Hobbs indicated to him that the direct clients or users of the FRMS are generally the developers of an FRMS. He agreed that an FRMS proposed by the pilots should be reviewed by the Committee and the Board, and be subject to Board approval and periodic review. Port Agent Long concurred with the proposed approach and stated that the SFBP would collaborate with the Committee, and that some of the study recommendations could set the foundation of the FRMS.

Port Agent Long noted that certain Study recommendations have already been implemented by the SFBP, certain Study recommendations lend themselves to regulations, and that other Study recommendations may be included in new SFBP work rules, but that it is an interactive process. He noted the importance of analyzing all recommendations and identifying the proper approach.

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Executive Director Garfinkle stated he was impressed by the Federal Aviation Administration's (FAA) regulations dictating a FRMS, and that the FAA's regulations may offer the Committee guidance on the development of an FRMS.

Dr. Kosnik stated he agreed with the general concept of the Committee recommending that the FRMS be developed by the SFBP. He stated that the Committee should clearly define all elements of the FRMS, such as training to recognize fatigue and exceptions to the 12-hour rest work rule, and target items to track and have the SFBP report back to the Board. Chairman Miller concurred.

Chairman Miller recommended that the Committee proceed cautiously with the recommendations in an attempt to prevent a cascade of unintended consequences. He also acknowledged that parts of an FRMS could be administered by the Board, such as the fatigue management training the Board currently provides to pilots in the combination course training.

Dr. Kosnik explained that an FRMS developed by UCSF for medical interns includes a requirement for supervisory staff to also complete fatigue management training so that fatigue in interns can be recognized. He stated that the intent is that no one can dismiss the identification of fatigue due to being ill-informed. Board Counsel Eagan stated that the Federal Aviation Administration (FAA) formally educates flight crew staff, non-flight crew staff, and management staff on fatigue management, and commented that the Board could consider requiring fatigue management training for non-piloting staff, such as the pilot vessel crews.

Vice President Connolly commented that when formulating a FRMS, the Committee should consider:

1. The issue of operational rules versus policy rules.
2. Planning for pilot assignments, including given hard stop and soft stop work and rest rules.
3. Being selective about requiring the Port Agent to report work and rest rule exceptions to the Board.
4. Fatigue-management training for pilots, trainees and potentially others who may have the opportunity to identify pilot fatigue.
5. Requiring monitoring and periodic evaluation of any Board fatigue-mitigation regulation or other requirement.

Study Recommendation #2: A limit on the duration of work periods is advisable. The current Bar Pilot Association policy (a limit of 12 hours) appears to be appropriate.

Chairman Miller reviewed recommendation #2 and began a discussion of a hard-stop (not-to-exceed number of work hours) work-period rule and a soft-stop (recommended) work period rule. He explained that a soft-stop work rule example could be a goal of a 12-hour rest period, and that there could be exceptions to this rule on a case-by-case basis by the Port Agent. He

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stated that such a work rule would allow flexibility in pilot assignments based upon the Port Agent’s assessment of the situation. He stated that a hard-stop work rule would impose a strict work or rest period that potentially only the Board’s Executive Director could authorize an exception to, although he commented the Board is not in the business of running a pilotage business.

Commissioner Nyborg discussed that a hard stop work rule may be difficult to implement since it could potentially require communication between the Port Agent and the Executive Director that may occur any hour of the day or night. He stated the pilots need to have a clear understanding of the work rules, and that the pilot needs to make a decision if an exception occurs without having to go through one or more decision makers.

Board Counsel Eagan proposed that the Committee consider whether, in addition to the Port Agent reporting to the Board minimum rest period exceptions, the Port Agent should also report “duty hours” that exceed a specified amount.

Port Agent Long stated that, for planning purposes, it is necessary to know what the work hour limits are—12 or 14 hours—and that we would like to not have to ask for permission to exceed the work-rule limit, but to report to the Board actual work or rest times that exceeded set limits.

Commissioner Nyborg commented that efficiency should be considered when assigning pilots. As an example, under a 12-hour work rule, he said it would not be efficient to assign a new pilot if the job went one hour longer so long as the pilot already on the job felt he could safely complete the job. He also stated that it is important to pilots to have hard stops on rest periods because of the impact that shortened rest periods have on pilot fatigue and a pilot’s need to have advance notice of the length of rest periods. He said that soft-stop rules are more applicable to work periods.

Mr. Jacob stated that while the definition of a work period is important, the Committee’s task is to determine how to create an enforceable rest-rule regulation that mitigates pilot fatigue, and that such a work rule is considered on the front end of an assignment so as to not assign a pilot to a job that will not allow for adequate rest.

Dr. Kosnik stated that he thought this Study recommendation was affirming the 12 on/12 off pilot work rules already in place, and that the Committee should affirm to the Board that this work/rest schedule is acceptable as noted in the Study. Board Counsel Eagan stated that the Board’s task is to determine whether pilot work or rest requirements should be in a Board-approved regulation. Chairman Miller and Commissioner Nyborg both agreed that a 12-hour work period is reasonable.

Study Recommendation #3: The maximum duration of a night work period without a rest opportunity should be less than the allowable duration of a daytime work period.

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Chairman Miller suggested recommendation #3 be included as part of the FRMS.

Study Recommendation #4: A limit to the number of consecutive night shifts is advisable. A limit of two consecutive night shifts would be most desirable; however, a limit of three consecutive night shifts may be more practical.

Port Agent Long stated that this item takes active management by the Port Agent, and that a new SFBP software program is starting to keep track of night shifts. Dr. Kosnik noted that the regulations would need to define what is considered a night shift. He added that in healthcare, nurses can be asked to work 2 or 3 nights in succession.

The Committee discussed additional issues related to working night shifts, including the fact that night jobs aren't of equal duration, and if a pilot moves out of working nights then everyone else on the assignment board moves up in the rotation. Vice President Connolly mentioned that the study focuses on the individual pilot but does not consider the next pilot in the rotation. Port Agent Long suggested that the Committee consider this recommendation toward the end, but that it would be helpful to consider limitations on pilots working consecutive nights.

Study Recommendation #5: The BOPC should explore the reasons for the early morning peak in arrivals and consider options to distribute arrivals more evenly thought the 24-hour day.

The Committee determined that this recommendation was outside the Board's jurisdiction, and did not discuss further.

Study Recommendation #6: The BOPC should consider whether a change to the minimum advance notice required when ordering a pilot would help to increase the predictability of pilot schedules.

Port Agent Long stated that the recent change by the SFBP to its work rules requires an 8-hour lead time when ordering a pilot at night, and noted that this change had a very positive effect on making the pilot rest periods more predictable. Commissioner Nyborg suggested that the pilots not be dispatched unless there is a 10-hour rest period, and should only dispatch a pilot at less than eight hours of rest if there is an emergency. He also noted that the Blue Card pilot standby rate is very low, so there isn't much financial incentive for a vessel to consider the cost of having a pilot wait around to work.

Study Recommendation #7: The BOPC should consider whether technological solutions (such as software applications) could enable the timing of piloting assignments to be predicted with greater accuracy.

Commissioner Nyborg noted that he was surprised to see this recommendation, as he felt that the SFBP is currently maximizing its use of effective pilot-assigning software. He also indicated that current global positioning system (GPS) and Automatic Identification System (AIS)

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technology provides good information about a vessel's location and potential arrival time.

Study Recommendation #8: The BOPC should consider whether pilots who are on call for 14 days should be provided with a rest break at or around the mid-point of the 14-day period. A midpoint break of at least 24 hours may be appropriate. If such a break does not occur naturally due to the movement of the board, it may be feasible to delay the pilot's BoB [bottom of the board] time to achieve this.

Chairman Miller noted that 7 days on/7 days off is the standard pilot work pattern, but increasingly pilots living out of state or distant from the pilot office are choosing to work a 14 days on/14 days off work pattern. Vice President Connolly noted that pilots working a 14-day schedule are more likely to experience longer consecutive nights of work.

Commissioner Nyborg pointed out that a 14-day work schedule has a long history among the pilots, going back to before the amalgamation of bar and river pilots. He noted that that 26% of current Board licensees live a substantial distance from the pilot office. He also emphasized that a 14-day work schedule has value to the pilots as a whole, and should remain allowable.

Assistant Director Cristia-Plant drew the Committee's attention to Board regulation 219(b), which states that each pilot is to perform his or her full share of assignments, which may be problematic when designing a regulation to add a 24 hour "reset"¹ period during a 14-day work schedule. Port Agent Long opined that this recommendation should be a lower priority, as other fatigue management measures may result in a natural "reset" of the pilot assignment board. Commissioner Nyborg stated it is his belief that the issue of a "reset" be left to the SFBP to resolve.

Mr. Jacob commented that it might not be the Board's role to set work schedules, but rather adopt a regulation about the rest periods instead of the number of days worked.

Study Recommendation #9: The BOPC should consider ways to minimize advancing shift rotation. An advancing shift rotation occurs when each work period in a series has a start time earlier than that of the preceding work period.

Port Agent Long stated that this recommendation is not amenable to regulation, and that advancing shifts can sometimes be a good tool for managing minimum-rest-period exceptions.

Study Recommendation #10: There should be a Minimum Rest Period (MRP) between work periods. The current Bar Pilot Association policy (12-hour MRP) appears to be appropriate.

Commissioner Nyborg commented that the length of the work day is less important than certainty as to the length of the rest period. He suggested a 10-hour hard stop for a rest period be put into regulation. Mr. Jacob stated, putting aside the potential for the unavailability of pilots, he agrees

¹ Section 1.2 of the Study discussed mammalian biological clocks, and noted that in order to align the body's circadian rhythm with the solar light-dark cycle and 24-hour rotation of the earth, the internal biological clock must be reset each day. .

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that this is an important recommendation to mitigate pilot fatigue, and that the Board acting solely on this recommendation would satisfy the plain language of the statute and is a critical component of this regulatory exercise.

Study Recommendation #11: Minimum Rest Period (MRP) exceptions should be monitored to ensure that no individual pilot is disproportionately burdened with MRP exceptions.

Port Agent Long suggested that this is a matter of personal responsibility. Commissioner Nyborg suggested 10 hours as a hard stop, and less than 12 hours requiring a report to the Board. The Committee felt that recommendation #11 was very similar to #10, with the same response.

Study Recommendation #12: The Committee should consider whether an extended rest period is needed following an MRP exception.

Chairman Miller stated that this recommendation is similar to the two prior Study recommendations, and should be incorporated into the review of Study recommendations #10 and 11.

Study Recommendation #13: Recalls of pilots from an off-call period should be managed so as to minimize disruption of their recovery rest prior to the start of their next on-call period.

Port Agent Long noted that recalling off-watch pilots is one of the last measures employed by the Port Agent to mitigate a shortage of pilots, and when it is necessary, is usually handled by asking for volunteers.

Study Recommendation #14: Pilots should receive an appropriate recovery period after awakening, before boarding a ship. A longer recovery period will be needed when the awakening occurs during the circadian low, or when the pilot has been asleep for more than 30 minutes.

Vice President Connolly commented that sleep inertia is a very real occurrence, and varies from person to person. As a group, the Committee felt that recommendation #14 is a self-regulated issue. Mr. Jacob commented that sleep inertia impacts could be addressed by the Board through education and training. Vice President Connolly agreed with Mr. Jacob's suggestion.

Study Recommendation #15: The BOPC should receive information on the number of Bar Pilots available on the Board.

The Committee agreed that data about the number of pilots on the board at any given time is not something the Board should regulate.

Study Recommendation #16: Implement solutions to increase the number of Bar Pilots available on the board at any given time. Approaches could include reducing the amount of "other duties" performed by Bar Pilots, or increasing the number of Bar Pilot Licensees.

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The Committee agreed that this recommendation could be addressed in a FRMS.

Study Recommendation #17: Implement a system to enable pilots to report fatigue and remove themselves from the roster without consequences when they are significantly fatigued. It will be necessary to address the cultural barriers that could prevent such a system from working.

The Committee agreed that the Harbors and Navigation Code already requires a pilot to refuse a pilotage assignment if he or she is physically or mentally fatigued and has a reasonable belief that the assignment cannot be carried out in a competent and safe manner, and that this recommendation could potentially be a reporting item for the Board to periodically monitor and review.

Study Recommendation #18: Provide pilots with educational material on the effective use of caffeine, and other aspects of good sleep hygiene.

Study Recommendation #19: Provide advice to pilots on how to improve their home sleeping environments. This could include educational material for families on how they can contribute to Bar Pilot rest and alertness.

The Committee agreed that the Board already includes fatigue-management information in the pilot combination course training taught at the California State University Maritime Academy. Chairman Miller asked staff to obtain additional materials that could potentially be used in the combination course training or other training provided by the Board.

Chairman Miller stated that he would like the Committee to start work on determining a fatigue mitigation policy and an outline of potential fatigue mitigation regulations at the next Committee meeting. Overall, the Committee agreed that recommendations #1, #2, #3, #4, #8, and #10/11/12 and #13 may be amenable to a regulation.

Port Agent Long confirmed for Assistant Director Cristia-Plant that the SFBP work rules are in writing and are proprietary.

5. Public comments on matters not on the agenda.

There were no comments from the public.

6. Schedule the next Committee meeting, and proposals for the next Committee meeting agenda.

The Committee agreed to schedule the next meeting on February 26, 2019, at 9:30 a.m. Chairman Miller stated that he hoped at the next meeting the Committee could start work on building a matrix of a pilot fatigue risk management policy, and also start on an outline of fatigue risk management regulations.

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7. Adjournment.

Chairman Miller, without objection, adjourned the meeting at 12:35 p.m.

Submitted by:



Allen Garfinkle, Executive Director